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ABSTRACT

Intel-ebration is an attempt to integrate the following research-based instructional frameworks and strategies: (1) dimensions of learning; (2) multiple intelligences; (3) thematic instruction; (4) cooperative learning; (5) project-based learning; and (6) instructional technology. This paper presents a thematic unit on safari, using the Intel-ebration framework. Each instructional strategy is described in a series of "One-Minute Overviews," including its theoretical and philosophical foundations, followed by a discussion of how each of these strategies is addressed in the Intel-ebration instructional technique. The first strategy discussed is "dmensions of learning," a framework for planning and implementing instruction that goes beyond factual learning. Intel-ebration addresses the five dimensions of learning: positive attitudes about learning, acquiring and integrating knowledge, extending and refining knowledge, making meaningful use of knowledge, and productive habits of mind. Next, Howard Gardner's concept of multiple intelligences is defined and the multiple intelligences are listed, including their educational use. Thematic instruction is defined as study across subject areas; examples of content Intel-ebration themes are presented. Cooperative learning is defined as including a variety of instructional techniques that promote interdependence in the classroom, and the Intel-ebration applications to the five attributes are addressed. Project-based learning, the final strategy discussed in the paper, is described as student-originated and student-executed. Included in the packet are learning activities entitled "Fauna of East Africa," "Fauna of East Africa 2," and suggested criteria for evaluation of student and group projects. (SD)

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## Intel-ebration: Safari

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# *Intel-ebration's* Instructional Techniques

*Intel-ebration* is an attempt to integrate the following research-based instructional frameworks and strategies:

- Dimensions of Learning
- Multiple Intelligences
- Thematic Instruction
- Cooperative Learning
- Project-based Learning
- Instructional Technology

A short overview of each of these areas follows.

## A One-Minute Overview of Dimensions of Learning

Dimensions of Learning (Marzano et al.)is a framework for planning and implementing instruction that goes beyond simple factual learning and regurgitation. *Intel-ebration* addresses all five dimensions of learning. Dimension One deals with positive attitudes and perceptions about learning.

Dimension Two is acquiring and integrating knowledge. During *Intel-ebraion* students will acquire and integrate both declarative and procedural knowledge. Assessment instruments are include to assess students mastery of selected procedural tasks (graphing for example).

Extending and refining knowledge is the domain of Dimension Three. Classification, induction, deduction, and questioning are all ways to assist students in Dimension Three. I have included an assessment instrument for classification in this packet.

Dimension Four is making meaningful use of knowledge. *Intel-ebration* addressed Dimension Four through the use of project-based learning.

Students are given ownership of their learning and decide how to make their learning meaningful.

Productive habits of mind are the goal of Dimension Five. *Intel-ebration* attempts to assist students in becoming reflective thinkers, more efficient planners, seekers of accuracy, and being open minded.

# A One-Minute Overview of Multiple Intelligence Theory

According to Howard Gardner, human intelligence consists of three components:

- a set of skills that enables an individual to resolve genuine problems encountered in one's life
- the ability to create an effective product or offer a service that is of value in one's culture
- the potential for finding or creating problems which enables an individual to acquire new knowledge

Gardner has identified the following seven intelligences:

**Linguistic Intelligence**, word smart, is the ability to think in words and to use language to express and appreciate complex meanings. Used by poets, journalists, effective public speakers

**Logical-mathematical Intelligence**, number smart, is the ability to calculate, quantify, consider propositions and hypotheses, and use logic. Used by mathematicians, scientists, and detectives

**Bodily-Kinesthetic Intelligence**, body smart, is the capacity to manipulate objects and use a variety of physical skills. Used by athletes, dancers, surgeons, and craftspeople.

**Spatial Intelligence**, picture smart, is the ability to think in three dimensions. Used by sailors, pilots, sculptors, painters, and architects.

**Musical Intelligence**, music smart, is the capacity to discern pitch, rhythm, and tone. Used by composers, conductors, musicians, vocalists, and sensitive listeners.

**Interpersonal Intelligence**, people smart, is the ability to understand and interact effectively. Used by teachers, social workers, actors, and politicians.

**Intrapersonal Intelligence**, self smart, is the capacity to understand oneself — including one's thoughts and feelings. Used by psychologists, spiritual leaders, and philosophers.

# A One-Minute Overview of Thematic Instruction

One of the basic assumptions of thematic instruction is that the greater number and variety of mental connections made between concepts and procedures the greater the learning. Therefore, in thematic instruction a concept or procedure is not presented or learned in the isolation of a single "subject." Rather a concept is studied across several traditional subject areas.

*Intel-ebration* is organized around three scientific themes: exploration, variation, and growth. These are common themes taught in elementary and secondary science classes. However, these themes are not limited to the sciences. Variation exists in literature, cultures, art, music, and sports.

The lessons presented in this book do not represent the entire universe of possible lessons for these themes. Rather they are only a starting point. I envision the classroom teacher choosing activities from this book that are appropriate for her/his classroom. In addition I envision the teacher connecting the "regular" curriculum to these themes. Each classroom will then have a common core *Intel-ebration* experience and several unique *Intel-ebration* experiences.

Here are a few examples of content you may already be covering this year that fit the *Intel-ebration* themes.

**Variation**
Cloud types
Density of liquids
Vegetation --
- forms (trees, shrubs, grass, etc.)
- leaf vein patterns
- leaf types

**Exploration**
Paper Chromatography
AIDS
Middle Ages

**Growth**
Knowledge
National Debt
Computer Use

# A One-Minute Overview of Cooperative Learning

Cooperative learning refers to a variety (there variation is again) of instructional techniques that promote interdependence in the classroom. I suggest that you use cooperative techniques approximately 50% of the time in the classroom. There are five (5) essential attributes that describe cooperative learning. If the first two elements are not present in a lesson, then it is nor *really* a cooperative lesson. The best cooperative lessons include all five elements. To help you remember, here is a little memory device: **PIGS Face**. Each of the letters in PIGS represent one element of cooperative learning.

**P** stands for *positive interdependence*. That is each person in the cooperative group needs the other group members to succeed. Positive interdependence can be promoted by assigning different jobs to each group member, giving each member a different piece of the instructional material, or by assigning the group to complete one product (instead of four separate products).

**I** stands for *individual accountability*. That means that the teacher has some method for assuring each individual is contributing equally to the group. This could be done by having each student using a different color of ink when completing a group assignment. The teacher can then tell at a glance how much each student contributed. You can also give individual tests or quizzes. A third way to promote individual accountability is to use a check sheet, walk around the classroom observing, and evaluate each student's group participation. A simple way of assessing individual accountability is to have students sign a statement indicating they were responsible in their group.

**G** reminds you to include *group processing* in your cooperative lessons. This means that at the end of the lesson the group discusses both the content (what was learned) and the process (group dynamics). I have included a sample group processing form. After students have used this form several times, the process will become internalized and you will simply have to ask the students to do their group processing activity. However, it is still advisable to have the groups complete a group processing form periodically and turn it in to hold them accountable.

Here are some sample group processing questions to use. Copy this page and use the top for group processing. Answers to the questions can be written or oral. You choose.

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**Group process related questions:**

Did we stay on task?

Did we complete our task?

What did we do well?

How can we improve our group work next time?

**Content related questions:**

What are the most important things we learned today?

Where could we go during our next lesson if we wanted to extend what we learned today? What's the next logical step?

---

**S** is for *social skills*. These are the skills necessary for functioning in a cooperative group. They vary from classroom to classroom. They may include active listening, taking turns, paraphrasing, or disagreeing in an agreeable way. Since each classroom needs its own unique set of social skills, I have not planned any social skills into the cooperative lessons in *Intel-ebration*. Look at your students' behavior and see what skills they are lacking. One good way to teach social skills is with a T-chart.

**Face** helps me remember that cooperative learning requires *face-to-face* interaction. Groups that have their backs to each other are not functional cooperative groups. Students should all be on the same level (no one up on a stage or table while everyone else is lower). Students should also be seated so that all of them can easily touch a piece of notebook paper if it were placed in the center of the group. Round tables work best.

A few notes about group size:

*Ideal group size tends to be between 3 - 6 students.*

*Groups of four can easily be split into two pairs when smaller groups are needed. Groups of six can be divided into pairs or trios.*

*The greater the academic difficulty of a task, the smaller the group size should be. Some tasks may require pairs.*

# *Intel-ebration's* Cooperative Techniques

- Blooming Worksheets
- Concept Formation
- Corners
- Expert Jigsaw
- 4S Brainstorming
- Jigsaw
- Numbered Heads Together
- Pairs (Turn To Your Neighbor)
- Roundtable/Roundrobin
- Team Projects
- Think-Pair-Share
- Think-Pair-Square
- Think-Square-Share
- Value Line/Continuum

# A One-Minute Overview of Project-Based Learning

Project-based learning sounds like a simple concept. However, traditionally it has been the teacher who sets the assignment and has control of the learning. When I talk about project-based learning, I am talking about a project that is student originated and executed. The problem is that in many schools students have not had the freedom to make decisions about their learning. For *Intel-ebration* I am suggesting that you allow the students, individually or in groups, to choose both the topic of the project and the end product that will result from this project work. It would also be great if you would lead your class in a discussion to determine how the projects should be evaluated. Just in case you don't have time, I have included a sample project evaluation guide.

# Fauna of East Africa

**Learning Activity 15**

Learning Activity Goal(s):
The student will complete a mini-project about an African animal

Learning Activity Objective(s):

Plans research
Conducts research on African animals
Creates product(s) for presentation to the class

Other Subjects Integrated:

- Science
- Language Arts (library-based research)
- Visual Arts
- Technology (computer-based research)

Technology used:

- CD Encyclopedias (if available)
- World Wide Web (if available)
- Word processing and/or graphics programs

Resources Needed:

| **Fauna of East Africa** Step-by-Step | | Time allotment 3 - 5 fifty minute class periods |
|---|---|---|
| 1. | Assign animal groups to each cooperative team. Each team will investigate a different category of animals. Suggested categories:<br>Winged Messengers (birds)<br>Fleet-of-Foot (antelopes)<br>Earth Shakers (large animals)<br>Jaws (carnivores)<br>Almost Tame (herd animals)<br>Slither (reptiles and fish)<br>Quasi-Modo (almost human) | 1 minute |
| 2. | Give students research assignment handout. Each individual will select a specific animal which belongs to the assigned category and conduct individual research. | 5 minutes |
| 3. | Students find required information (may require from one to three days) | 50 - 150 minutes |
| 4. | Group prepares display of information (may require from one to two days) | 50 - 100 minutes |
| 5. | Group prepares presentation of project (suggested 1 minute of presentation time per member) | 10 - 50 minutes |

**Assessment:**

Rubric for self-assessment of project planning and presentation
Rubric for teacher assessment of project planning

# *Exploring the Animals of East Africa*

There is great variation among the animal population in East Africa. One way of looking at the animals living in Kenya is through the seven groupings listed on this page.

### *Winged Messengers*
(birds)
Ostrich
Flamingo
Vulture
Weaverbird
Marabu Stork

### *Fleet-of-Foot*
(antelopes)
Impala
Bongo
Waterbuck
Hartebeest
Gazelle

### *Earth Shakers*
(large animals)
African Elephant
Black Rhinoceros
Hippopotamus
Giraffe

### *Jaws*
(carnivores)
Lion
Cheetah
Leopard
Hyena
Jackal

### *Almost Tame*
(herd animals)
Zebra
(Water) Buffalo
Wildebeest
Warthog

### *Slither*
(reptiles)
Black-necked (spitting) Cobra
Sea Turtle
Nile Crocodile
Python

### *Quasi-Modo*
(almost human)
Mountain Gorilla
Baboon
Colobus Monkey
Vervet Monkey
Blue or Sykes Monkey

# *Exploring Animals of East Africa*
# *Individual Research*

1. As a group, your team must decide which individual is researching which animal. Use the animal list to provide ideas. If you want to research an animal that is not on the list, get your teacher's permission before beginning your work.

2. As a minimum requirement you must report the following information for your animal:
    1. Common name
    2. Scientific name
    3. Habitat
    4. Physical description:
        legs, arms, wings, limbs, etc.
        height and/or length
        weight
        body covering
    5. Life span
    6. Gestation Period
    7. Is the animal an endangered species?
    8. Illustration, picture, sculpture, or drawing

3. Your "report" should demonstrate your competence in at least three intelligences. You may decide to include a graph (mathematical and visual intelligence), a labeled drawing (visual and linguistic intelligence); a written summary (linguistic intelligence); a rap featuring what you have learned (linguistic and musical intelligence); an interpretation of your animals movement (bodily intelligence); or something entirely different. Be sure to think ahead and look at how your project will be evaluated. Complete the research planning sheet, discuss your plans with your teacher, and give your teacher a copy of your plan.

## Planning My Research

1. Topic: (Animal Name) _____

2. What kinds of information do I need?

3. Where can I get that kind of information? (Places and people can be resources, too. What about computer sources?)

4. What would I like my final product(s) to be? (See the sample product listing.)

5. What intelligences will this project require?

6. List the major things that must be done to complete the project.

7. Now estimate how much time each of the events in #6 will require.

8. Decide the order in which you will complete them.

## Sample Final Product List

These are ideas of products you may want to consider. This list does not include *everything* possible. As you look at this list add any ideas of your own that are not on the list.

Advertisement
Advertising Brochure
Annotated Bibliography
Big Book
Biography
Board Game
Bulletin Board
Choral Reading
Collection
Comic Strip
Crossword Puzzle
Diorama
Drawing (any medium)
Editorial
Elegy
Essays
Eulogy
Fable
Glossary
Graphs
Hyper Stack
Interpretive Dance
Journal
Labeled Drawing
Letter
Letter to the Editor
Make a Rap
Map
Mime
Mobile
Museum Exhibit
Oral Report
Original Musical Composition
Painting (any medium)
Photo Essay
Picture Dictionary
Play (comedy, tragedy, etc.)
Poem (any form)
Poster
Pottery
Puppet Show
Puppets
Relief Map
Sculpture
Short Story
Skit song
Stitchery
T.V. Program
Time Line
Travel Brochure
Video Recording
Web page
Word find Puzzle
Write new lyrics for a song
Written Report

adapted from
*Product List for Independent Study*, Engine-Uity, 1984

# Fauna of East Africa 2

**Learning Activity 16**

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Learning Activity Goal(s):

Learning Activity Objective(s):

Presents projects to fellow classmates
Revise presentations
Re-presents projects to fellow classmates

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Other Subjects Integrated:

- Language Arts

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| **Fauna of East Africa 2 (Project Presentations)**<br>Step-by-Step | | Time allotment<br>50 Minutes |
|---|---|---|
| 1. | Have the cooperative teams number off from one to your total number of groups. (For example, if you have six teams they will number off from one to six.) | 1 minute |
| 2. | Each odd numbered team will travel to team with the next higher number. (Team 1 travels to team 2, team 3 travels to team 4, and so on. If you have an extra odd numbered team, have that team join teams 1 and 2.) | 2 minutes |
| 3. | The visiting team is the first team to present its project. Suggested time limit is ~one minute of presentation time for each team member. | ~5 minutes |
| 4. | The listening team provides feedback to the presenting team. They must give at least three specific praises and one constructive criticism of the presentation. | 2 minutes |
| 5. | The teams change roles. The presenting team becomes the listening team and the listening team now becomes the presenting team. The teams repeat steps 3 an 4. | ~7 minutes |
| 6. | Groups return to their home bases and revise and improve their presentations based on the feedback received. | ~10 minutes |
| 7. | Teams form new partnerships and repeat steps 3 through 5. This time form the partnerships as follows: Teams 1 & 3, Teams 2 & 4, Teams 5 & 7, teams 6 & 8, and so on. If you have an odd number of teams, place the extra team with teams 1 & 3. | ~15 minutes |
| 8. | Teams return home and complete individual evaluations of their project and their group presetation. **Reflective Journal Starter** -- What were the most amazing things you learned today? | ~5 minutes |

**Assessment:**

Rubric for self-assessment of project planning and group presentation
Rubric for teacher assessment of project planning



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## Suggested criteria for evaluation of student and/or group projects:

- Followed assignment guidelines
- Product(s) presented required at least three intelligences to complete
- Product(s) are logical for the project
- Creativity
- Substance (a no-brainer or something more?)
- Quality of the product(s) is appropriate for the age of the student(s)

Use the following 4 point scale to assess the product(s):

4 Done completely
3 Completed without significant error
2 Many errors but completed a rough approximation of the requirements
1 Made many errors when completing the project

Levels 3 and 4 are considered acceptable levels of performance while levels 1 and 2 indicate further work is needed to ensure mastery.

| | Student Assessment | Teacher Assessment |
|---|---|---|
| Followed guidelines | | |
| At least 3 intelligences | | |
| Logical product(s) | | |
| Creative | | |
| Substantial | | |
| Quality | | |
| Other: | | |

***Teacher Application***
***To Join the Intel-ebration Team***

## *Teacher Information*

Name _____ e-mail address _____

Grade Level(s) taught _____ Phone number (_____)_____

Years of teaching experience _____ Subject Area(s) taught:

Number of students you expect
to have participating in *Intel-ebration*: _____

### *School Information*

School Name: _____

School Mailing Address: _____

_____

City _____

State _____ Zip Code _____

Principal's Name _____

### *Technology Information (check what you have available):*

____Computer with modem (or better) connection
Type of computer:
____ Mac
____ PC

____ 35 mm Camera

____ Subscription to an on-line service (CompuServe, America On-line, etc)

____ Direct connection to the internet

____ Web browser software (Netscape, etc.)

### *Commitment*

If selected to become a member of the *Intel-ebration* team, I pledge to lead my class through all phases of the program from in-class lessons to the completion and display of student projects to the best of my abilities.

_____

Signature of Applicant

# Join us for *Intel-ebration* 1998 . . .

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